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ABSTRACT

An interactive tool was created to gauge the skills and attitudes of individuals and populations regarding computer technology and its attendant changes. The goal of the project was to develop a non-threatening, user-friendly instrument to assess the computer skills and attitudes of preservice and inservice teachers and administrators at all levels. The program was created in Authorware, an icon-based interactive courseware-development tool, to give each user a series of tasks, surveys, and audiovisual presentations about the use of computers in education. Only basic keyboard skills and the use of a mouse are required initially, and computer skills are expected to develop during the course of the interaction. Presentation of the instrument at the 25th annual conference of the International Visual Literacy Association (IVLA) resulted in user feedback that can refine and further develop the instrument. It appears that it can serve its original purpose and may be adaptable for other purposes. Four figures illustrate screens and elements from the instrument. (SLD)

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Combating Computer Fear and Apprehension through Interactive Multimedia

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Introduction

Changes in computer technology place unusual demands on learners, educators, and administrators. As technology changes and interactions with technology become more frequent, it is increasingly important to be able to gauge the relative skills and attitudes of both individuals and populations regarding technology and its attendant changes. The interactive tool discussed in this paper was created to aid in gathering information regarding these individuals and populations.

Rationale

The goal of this project was to develop a non-threatening, user-friendly instrument to assess computer skills and attitudes of pre-service and in-service teachers and administrators at all levels. The information gained through this assessment will be valuable in evaluating the current status of technology use by individuals and in larger populations. It will help to identify strengths and weaknesses in the status quo, thus aiding in the planning process for future training, applications, and allocation of resources. Instead of a pencil-and-paper attitude survey in this realm, this instrument uses the "feared" device to gather information *and* to deliver a positive experience using technology. There is disagreement within the team as to whether such an experience will have any measurable immediate effect and additional research will further illuminate the issues involved in this disagreement.

Description of Instrument

Created in *Authorware*, an icon-based interactive courseware development tool, this program gives each user a series of tasks, surveys, and audiovisual presentations regarding the use of computers in education. The only skills necessary at the beginning of the exercise are basic keyboard use and the ability to place a cursor using the mouse and to "click" when so instructed. These and other skills are expected to develop further in novice users during the course of the interaction. In some instances on-line help or remediation provides assistance/advice. Each participant

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proceeds through exercises, interactions, and surveys. Initial tests (Figures 1, 2, and 3) and a survey (Figure 4) establish a baseline of computer skills and attitudes for each participant. System elements are shown in Table 1.

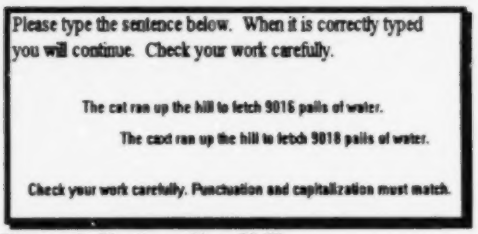
Please type the sentence below. When it is correctly typed you will continue. Check your work carefully.
The cat ran up the hill to fetch 9016 pails of water.
The cast ran up the hill to fetch 9018 pails of water.
Check your work carefully. Punctuation and capitalization must match.

Figure 1. Keyboarding Skills.

Feedback

The presentation of this instrument at the 25th annual IVLA conference in Rochester, NY, consisted largely of a conversation with other participants to determine merits/ weaknesses of the system as presented and to solicit suggestions for revisions and subsequent use. Attendees responded to the project and suggested possible populations for pilot studies. The discussion during and after the presentation illuminated negative and positive elements in the system, suggesting useful changes and areas for further research using this instrument.

The suggestions for revision of the piece ranged from making the system more economical by using fewer statements in the attitude surveys to adding more video vignettes representing other situations and attitudes involving technology in education. The main suggestions were:

1. Improve preliminary instruction set by rewording instructions for brevity and clarity.

2. Reduce provocative statements from 36 to 24 for the initial and exit attitude surveys and clarify remaining statements to avoid misinterpretation.

3. Print four statements and sliders per screen rather than six.

4. Establish alternate navigation strategies in case subjects have difficulties with the mouse.

5. Create additional video vignettes with positive/neutral interchanges among students/teachers.

6. Add "gentle" feedback during the interaction with statements such as "It seems that you are quite comfortable working with computers," or "Apparently you have some reservations about the use of computers in education".

Feedback on the system in general encourages further exploration using this project. Discussion participants were especially positive about the benefit of using the computer in a non-threatening environment to

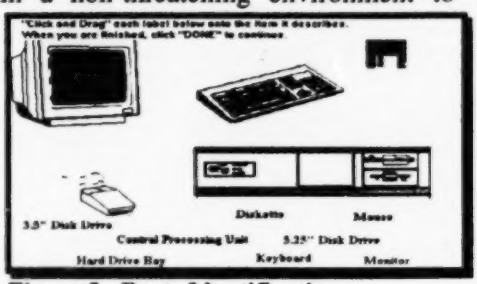

Figure 2. Parts Identification.

help subjects to consider their own attitudes and reactions while successfully interacting with technology. Many of the attendees at the presentation named specific groups, especially teacher populations, for whom they believed a program such as this one would prove useful. Five specific groups were identified with whom this system will be tested, three by participants at the presentation and two more by other conference attendees. Colleagues in other disciplines have expressed interest in using this modular system for research and training in their own areas of study. The system can easily evolve to accommodate other uses.

Table 1. System Elements.

Step	Title	Description	Interaction	Assessment
1	Demographics	Acquisition of demographic information (name and educator role)	Keyboard entry	None
2	Skills and knowledge (See Figs. 1, 2, 3)	Single-screen keyboard, single screen mouse, and computer parts identification tests	Keyboard and mouse	Timed Performance
3	Initial attitude survey (See Fig. 4)	Responses to provocative statements in four areas: positive personal, negative personal, positive world view, and negative world view responses to computers in education.	Graphic "sliders"	Numerical values recorded for each of four areas.
4	Video vignette 1	Portrays four elementary students in conflict over use of a computer	Operate video player	None
5	Vignette 1 reaction .	Responses to provocative statements specific to vignette	Same "slider" interface as in initial attitude survey	Numerical values recorded for each of four areas.
6	Video vignette 2	Portrays one secondary student working on a text-based assignment in cooperation with her teacher	Operate video player	None
7	Reaction to vignette 2	Responses to provocative statements specific to vignette	Same "slider" interface as in initial attitude survey	Numerical values recorded for each of four areas.
8	Exit attitude survey	Duplicates initial attitude survey	Graphic "sliders"	Numerical values recorded for each of four areas.

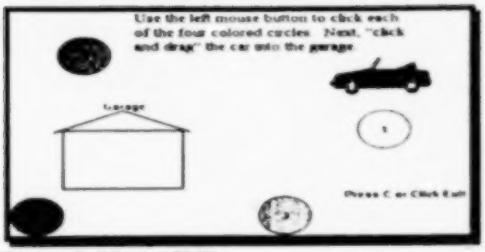

Figure 3. Mouse Skills.

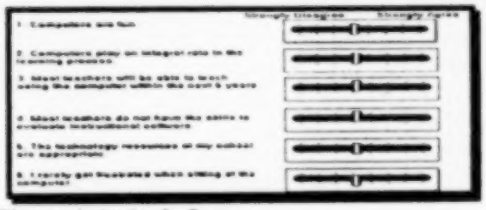

Figure 4. Attitude Survey.

Conclusions

From discussions, tests and the interactions at the IVLA conference it appears that this instrument should prove useful for its original purposes and perhaps for purposes not originally intended. The interactive system is being revised to reflect the feedback so far, and further research has begun with in-service and pre-service populations. It could become the basis for a valuable planning and evaluation tool in a variety of applications.

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